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(54) MANUFACTURE OF SUPERELASTIC TI-NI MATERIAL

(57) Abstract:

PURPOSE: To remakably enhance the superelastic characteristics of an Ti-Ni alloy showing superelastic martensitic transformation by cold working the alloy and by heat treating it at a specified temp. or above at which no recrystallization is caused to form a worked structure which is hardly deformed by slip.

CONSTITUTION: A Ti-Ni alloy such as a Ti-49.5W51.5at% Ni alloy or an alloy obtd. by adding 1at% in total of one or more among Fe, Co, Cu, Mn, Cr, V, Zr, Pd and other noble metals to the Ti-Ni alloy is prepared. The Ti-Ni alloy is cold worked and heat treated at ≥250°C, especially 250W550°C without causing recrystallization. Thus, the susperelastic characteristics of the superelastic Ti-Ni material are remarkably enhanced. For example, when the heat treated Ti-Ni material is used as a spring material with very high expandability, the range where the material can act as a spring is

extended by about 20 times the range where a conventional spring material can act as a spring.